Microsoft

.net developer training

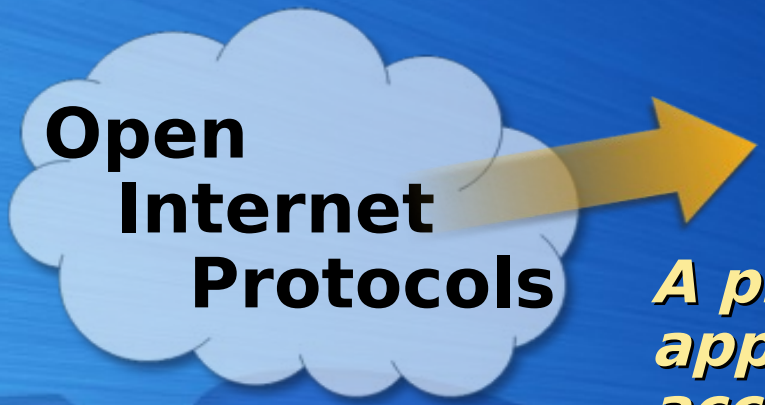
Create XML Web Services and Applications with Visual Studio .NET

Creating XML Web Services

Module 09 Agenda

- Visual Studio® .NET and XML Web Services
  - What is an XML Web service?
  - What does an XML Web service do?
  - Mapping
  - Creating
  - Consuming
  - Returning data from an XML Web service
  - Using Data from an XML Web service
  - Designing
  - WSDL, DISCO and UDDI
  - Securing XML Web services

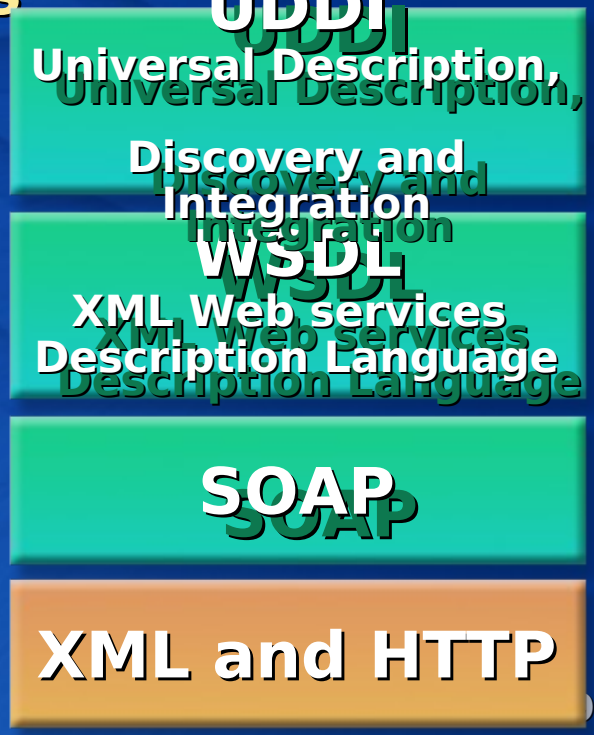
What is an XML Web Service?



XML Web service

A programmable application component accessible via standard Web protocols

- **UDDI - Provides a directory of services on the Internet**
- **WSDL - XML Web services are defined in terms of the formats and ordering of messages**
- **SOAP - XML Web service consumers can send and receive messages using XML**
- **Built using open Internet protocols**



What Does an XML Web Service Do?

- XML Web services
  - Expose functionality as a service and allow applications to share data
  - Can be called across platforms and operating systems and regardless of programming language

XML Web Services Mapping

The .NET Framework provides a bi-directional mapping

WSDL and SOAP

- "TypeLib for SOAP"
- Uniform representation for services
  - Transport Protocol neutral
  - Access Protocol neutral (not only SOAP)
- Describes how to call an XML Web service

DISCO

- DISCO is a proprietary file format placed at the root of a Web directory
- Visual Studio generates the DISCO for your XML Web service when you generate your service
- Easy discovery model for HTTP

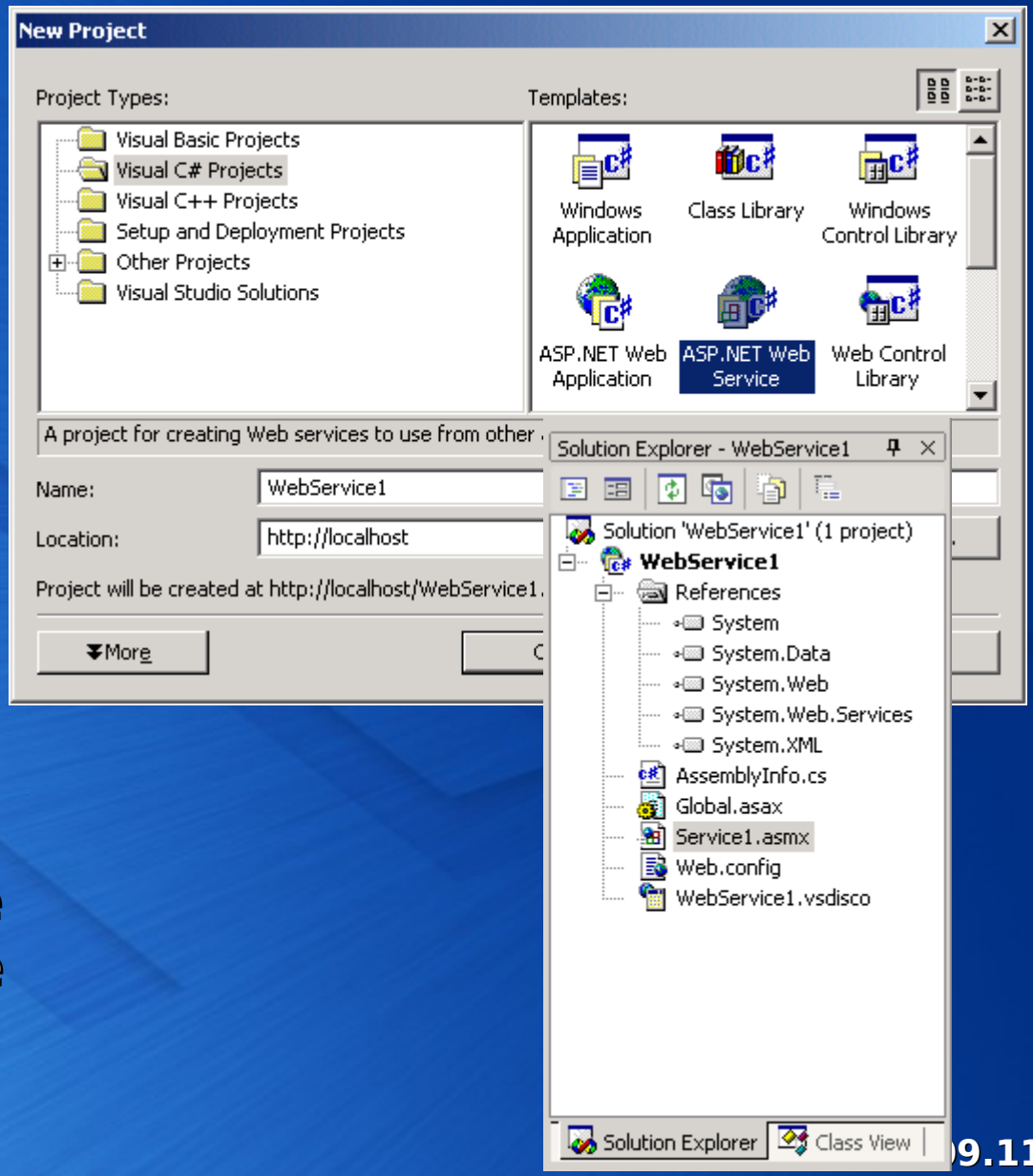
UDDI

- Registry (Directory) for Web Services
- Universal Description, Discovery and Integration (UDDI)
- UDDI itself is a Web service – can be programmatically accessed
- Businesses can publish to registry and query registry
- May point to WSDL files
- Initiative driven by Microsoft, IBM, Compaq, Intel, Sun, Oracle and 250+ other companies

Web Services (In Practice)

Visual Studio .NET and XML Web Services

- Visual Studio .NET creates XML Web services for you
  - Generates the plumbing
    - i.e., SOAP, DISCO, WSDL, etc…
  - Automates the creation of the project files



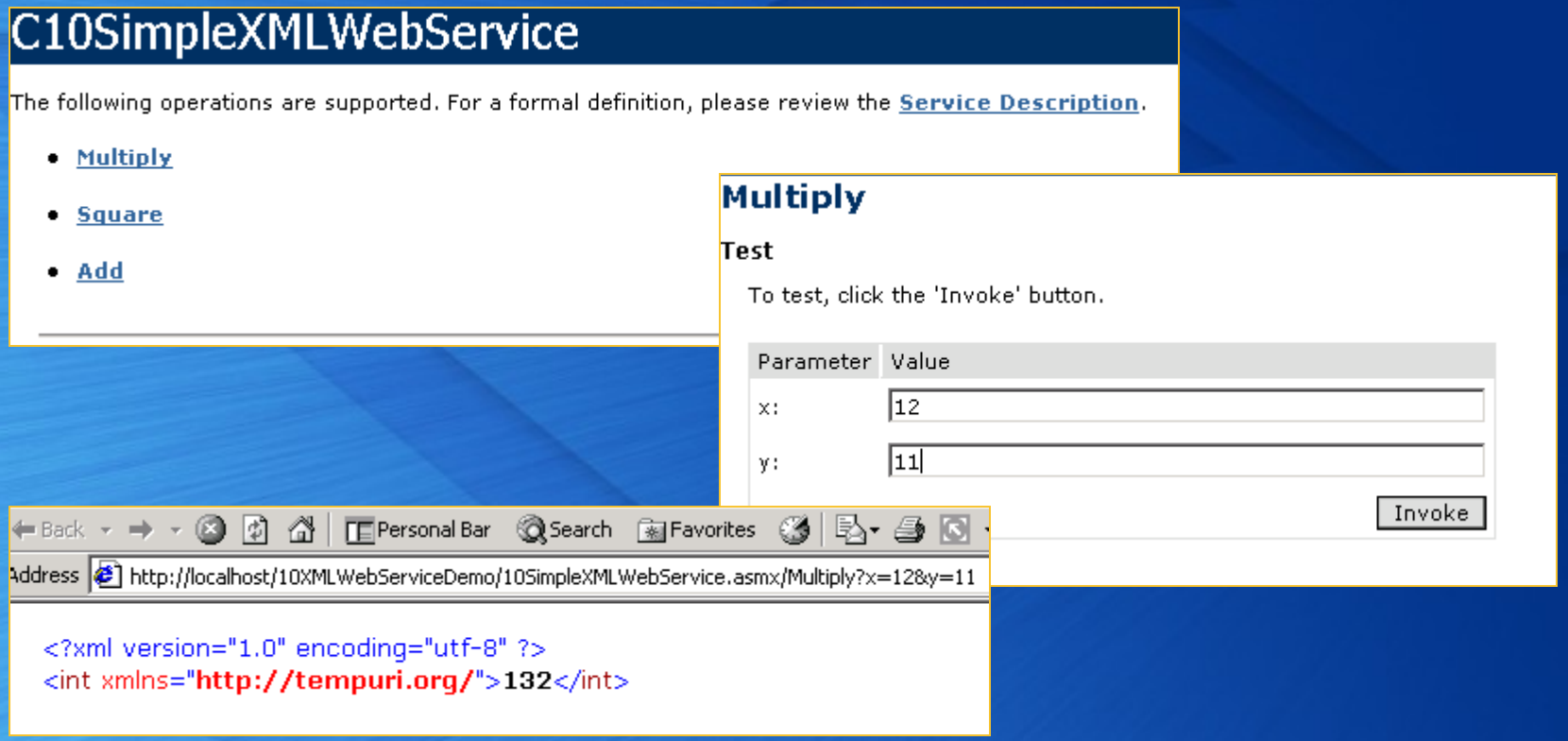
Creating an XML Web Service

- **Create standard function**
  - **Right click project**
    - **Select add → Add XML Web service**
    - **Name service file**
  - **Define function**
    - **Use template function in .asmx file**

```
‘<WebMethod ()>  Public Function
HelloWorld() as string
      ‘HelloWorld = “Hello World”
‘End Function
```

Creating An XML Web Service
Demo

- XML Web Services 101
- Create a simple XML Web service



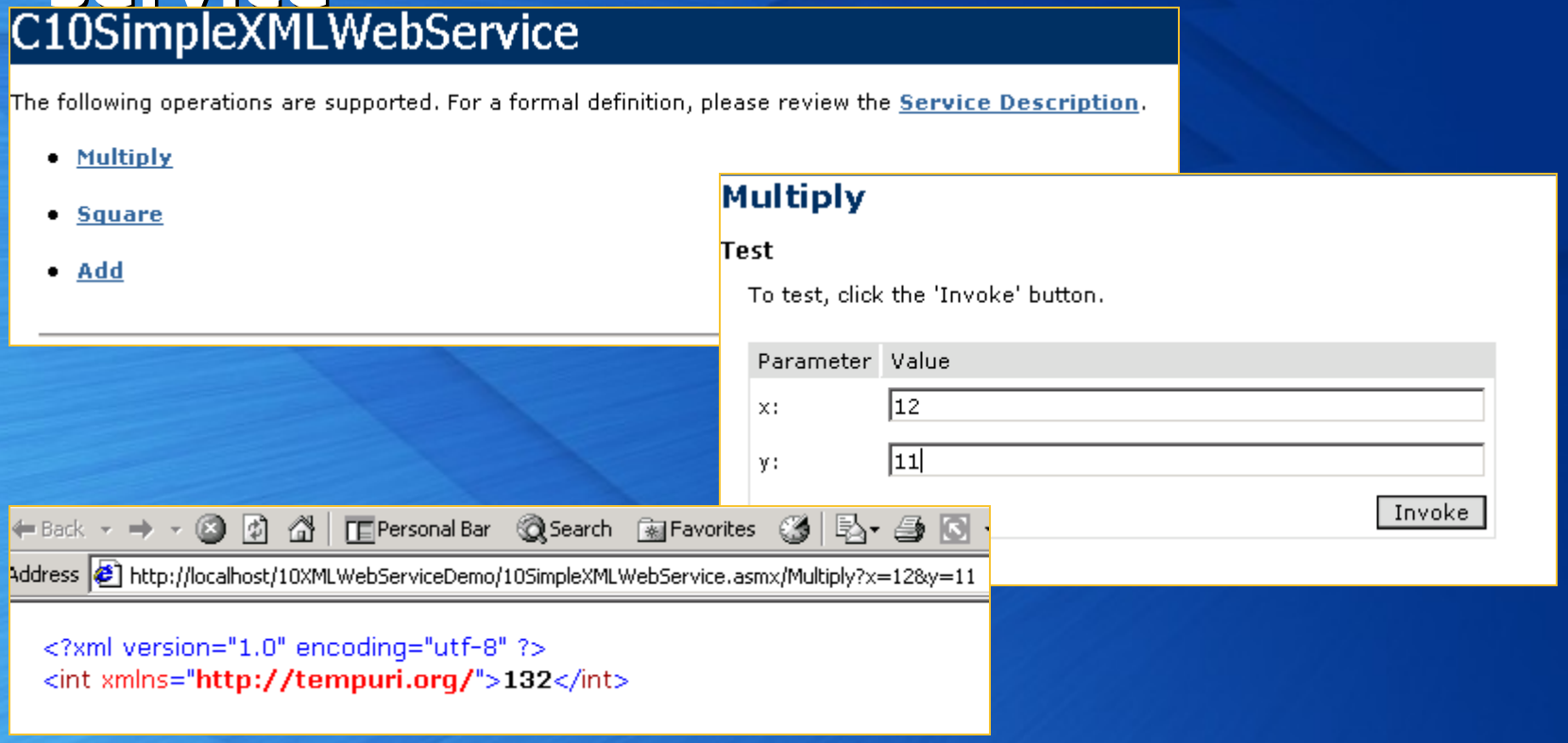
Consuming (Using) XML Web Services

- Create reference to an XML Web service
  - Search UDDI to discover SOAP-based, WSDL-described Web services
  - Select add Web reference in Visual Studio .NET
  - Create variable reference to XML Web service:

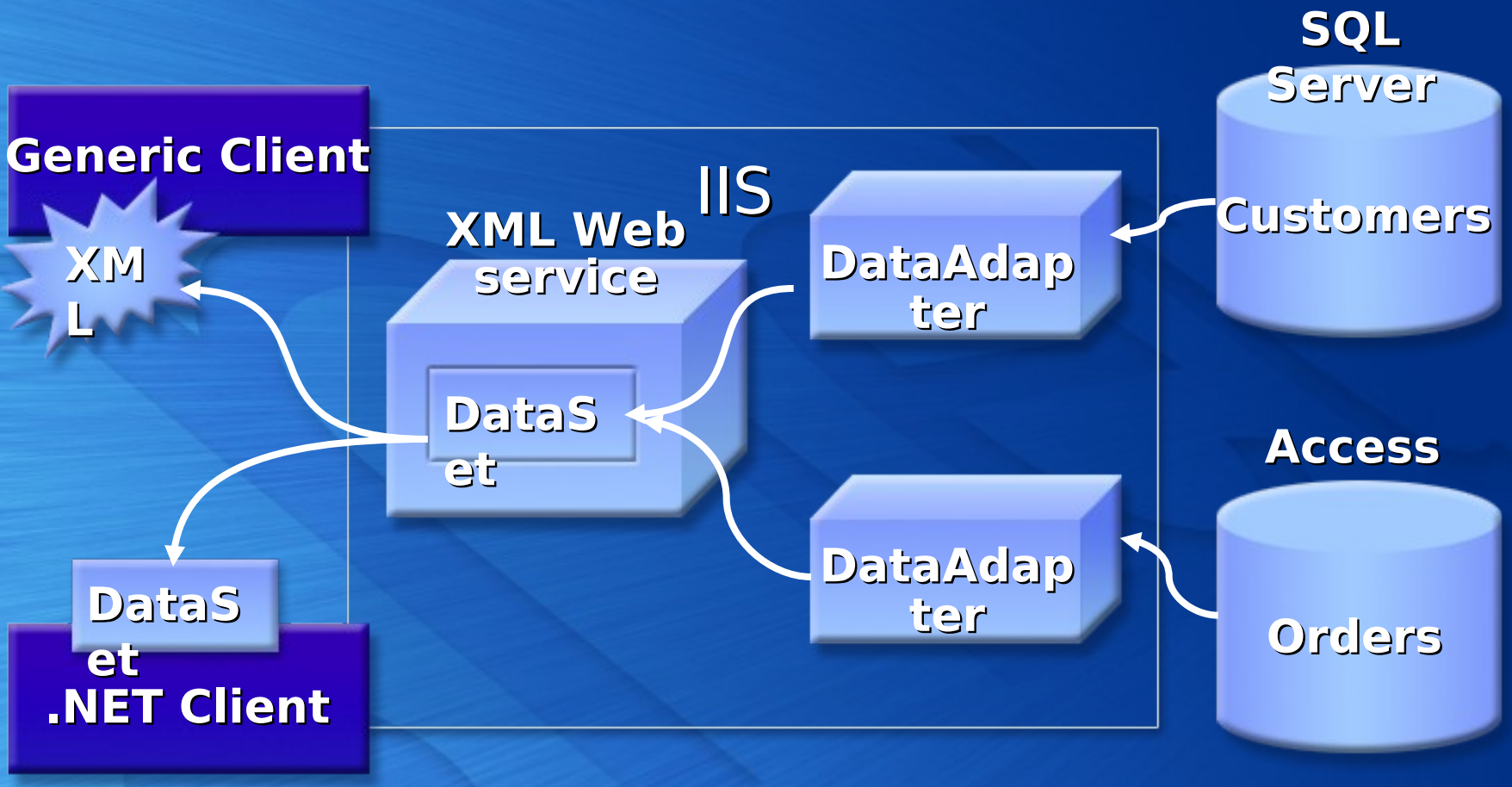
    ```
    Dim ws as YourServer.ServiceName
    ```
  - Use like any other class

Consuming Web Services
Demo

- XML Web Services Clients
- Create ASP.NET page to use XML Web service



Returning Data from an XML Web Service



Consuming Data from an XML Web Service

Demo

- Create data using an XML Web service and test it
  - Show how XML is returned to the browser but the DataSet is returned to the application that uses it

Designing an XML Web Service

- Group related operations and data into one method
- Decide on:
  - Arguments and return data
  - Whether to use existing classes or create new ones
  - Security
- Use output caching to improve performance
- Define your input and output data structures using XSD schemas
- Separate XML Web service from

Securing XML Web Services

- **Authentication**
  - **Standard user account mechanisms**
- **Authorization**
  - **Custom code**
  - **Configuration settings in Web.config**
- **Encryption**
  - **SSL**
    - **Watch out for performance hit**
  - **IPSec**

Summary

- XML Web services
  - Enable cross-platform communication
  - Provide flexible mechanism for sharing information
  - Easy to create in .NET and Visual Studio .NET

Resources

- ***What is an XML Web service?*** **A simple overview of XML Web services**
  http://www.microsoft.com/net/xmlservices.asp
- ***Programmable XML Web Services*** **- The basic building blocks for the Microsoft .NET Framework**
  http://msdn.microsoft.com/library/periodic/period00/Webplatform.htm
- ***SOAP and the .NET Framework*** **- Basic article on various aspects of SOAP and how it works in the .NET Framework**
  http://msdn.microsoft.com/library/techart/hawksoap.htm
- **SDKs, white papers, specs, etc.**
  http://uddi.microsoft.com/developer

Resources

- ***A Look at XML Web Services and Other Components* - An explanation of pieces of .NET applications**
  http://msdn.microsoft.com/library/dotnet/cpapndx/_cor_Web_services__well_known_objects_single_and_singleton__client_activated_objects.htm
- ***Web Server Platform* - A more detailed definition of XML Web services and how they impact .NET Applications**
  http://msdn.microsoft.com/library/techart/Webservcs_platform.htm
- ***XML Web Services Specifications* - A simple explanation of XML Web services with a few links**
  http://www.gotdotnet.com/team/xml_wsspecs/default.aspx
- Microsoft UDDI SDK v1.76 Beta -
  http://msdn.microsoft.com/downloads/default.asp?URL=/downloads/sample.asp?url=/msdn-

In-Depth Training on XML Web Services

Direct from Microsoft

- 2524A: Developing XML Web Services (Visual C# .NET Beta 2)
- 2524B: Developing XML Web Services Using Microsoft Visual Studio .NET
  - Available in Mar 2002

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